TRANSACTIONS
OF THE
ROYAL SOCIETY OF NEW ZEALAND

BOTANY

VOL. 1 No. 14 SEPTEMBER 21, 1962

[Continued from *Transactions of the Royal Society of N.Z.*, Volume 88, Part 4.]

An Account of the Flora of Henderson Island, South Pacific Ocean

By HAROLD ST. JOHN,
B. P. Bishop Museum, Honolulu,
and
W. R. PHILIPSON,
University of Canterbury, New Zealand

[*Received by the Editor, March 23, 1961.*]

Abstract

A brief description of Henderson Island is followed by a list of the known flora. Vascular plants consist of 8 Filicales, all widespread, and 55 Angiosperms, of which 4 are adventive and 10 are endemic. Described as new are: *Cassia glanduligera* (also from Austral Islands); *Sesbania atollensis* (also from Society Islands and Tuamotu Arch.); *Myrsine Hosakae*; *Geniostoma hendersonense*; *Meryta brachypoda* (Harms.) var. *brevior* (also from Austral Islands); and *Heliotropium anomalum* (Hook. and Arn.) var. *candidum*. The new combination *Glochidion pitcairnense* (F.Br.) St. John is made (also from Pitcairn Island).

HENDERSON Island is a raised coral island, situated in the South Pacific Ocean. It is at 24° 22′ S. Lat., 128° 20′ W. Long.—that is, south of the Tuamotu Archipelago and between Pitcairn and Ducie Islands. It is 200 miles west of Ducie and 90 miles east of Pitcairn. The island is broadly elliptic in outline, and is elevated about 33 metres above sea level. The shore is an almost continuous line of precipitous and undercut cliffs, about 33 metres high, and there is a coral reef 200 metres wide, fringing at least the north and the north-west sides. The combination of these two features makes a landing a hazardous experience. It can be accomplished at the several tiny coves with sandy beaches that are approachable after one crosses the extensive coral reef. After scaling the cliffs, one arrives on the top of the island, which is nearly flat, 5 miles long, and $2\frac{3}{4}$ miles wide. However, there is a perceptible shallow depression, only sparsely wooded, towards the centre. When he visited it in 1934, St. John found the island covered with a virgin forest of dense, small trees, about 5 to 10 metres tall. The undergrowth was sparse and much bare rock was exposed. The rainfall was apparently adequate to support a good vegetation. Since the country rock was wholly marine coral and coraline

Published by the Royal Society of New Zealand, c/o Victoria University of Wellington, P.O. Box 196, Wellington.

algae, it was nearly pure calcium carbonate. This is sufficiently soluble in water for the rain water to erode cracks to fissures and crevasses. The ground surface, which appeared flat, was only so in profile, owing to the equal summits of most of the highest pinnacles of rock between the crevices rising to the same summit level, like that of a peneplain. Walking on this eroded surface was the worst in St. John's whole experience. The crevasses were often 3 to 7 m deep, with rough and jagged sides. Ground vegetation concealed many of the holes. A slip and a fall into one of these would be a crippling experience. The solution used was to walk slowly and carefully, aided by two canes.

No surface water, standing or running, was seen. In the shore cliffs trickles or drips of fresh water could be found in the caves.

Visits of any sort to the island have been few and usually brief. The island was discovered by Captain Henderson, of the missionary voyage on the Hercules on January 18, 1819. It is now British, under the Pitcairn Administrative District. The island is uninhabited and apparently always was so, even by the Polynesians. There have been shipwrecks on the island and several times castaways have taken refuge there. Food is available but water is scarce. Some of the unfortunates have eked out life for months till a rescue, but others perished, leaving their bones in a cave.

Rarely whaling ships and other ships have made brief visits. The island has been prospected for guano but has not proved rich enough in it for exploitation. The only regular visits are by the Pitcairn Island people. Each summer, when possible, they sail in whale boats the 90 miles to windward to Henderson Island, land at the north end and fell trunks of "milo", *Thespesia populnea* and sandalwood, *Santalum hendersonense*. From the beautiful reddish wood of the former and from the fragrant wood of the latter they make carvings to be offered for sale to passengers on passing steamers

Until recently the botanical collections from Henderson Island (also once called Elizabeth Island) have been meagre. Captain Beechey's Expedition, on December 3, 1825, obtained several species there, among which they distinguished and described as new *Cephaelis ? fragrans, Chiococca odorata, Bradleia Glochidion* ?, and *Euphorbia ramosissima* (Hooker and Walker-Arnott, 1832: 64–69); and later *Asplenium nidus* was identified from their collections. J. H. Maiden, in 1896, reported a few common species.

The first important plant collection was made in August and September, 1912, by David R. Tait, who stayed on the island three and one-half months. He camped at the south end of the island, and most of his localities are there, but he also got specimens from "along front of North Cliff", and "throughout the Island". He collected 91 numbers, representing 55 species. These were deposited in the Edinburgh Herbarium, tentatively named by J. F. Jeffrey, but stored as a bundle, not inserted in the herbarium. By good fortune the director of the Edinburgh Botanic Garden asked St. John to determine them just when he was working on this report. The first set of this collection is in Edinburgh, and the second in the Bishop Museum, Honolulu. Mr Tait (1869-1943) was a geologist, a Scotsman who was born, lived, and died in Edinburgh (see Macgregor, 1948). While employed in commerce, he took night school courses in botany and geology. Then he started his life work as a paleontologist, serving for 37 years on the staff of the Scottish Geological Survey. No other record of this voyage to the Pacific has been found, but his specimens, labels, and the attached list well document his trip. Doubtless his first object was to collect fossils in the marine limestones of Henderson Island, but his plant collections are notable. If he really explored the island so completely that he could record some species as "throughout the island", he is the only person who has done so. It was an arduous and dangerous task and he deserves much credit.

The Mangarevan Expedition of the Bishop Museum stopped at the north-west end of Henderson Island from June 17 to 21, 1934. Large collections were made by the botanist, H. St. John, assisted by F. R. Fosberg. The first set of these collections is in the Bishop Museum, but the numerous duplicates have been widely distributed.

W. H. Lintott, during February 3 and 4, 1957, collected 27 numbers containing 25 species. The first set of these is at Canterbury University, the second at the Bishop Museum.

Flora

The vascular flora of Henderson Island is not large, but it may be compared with that of the adjacent atolls in the Tuamotu Archipelago. Typically these have a native flora of from 10 to 30 species. The atolls are low, semi-arid, somewhat saline, and with little diversity of habitat. Nearly all of their species are wide-ranging marine littoral species.

Henderson is also a coral island, but when elevated it formed an elliptic island with an extensive flat top about 33 metres above sea level. It is protected from the sea by its height, so its summit is non-saline. Its rainfall is sufficient, so its virgin, climax vegetation is a closed formation of dense forest 5–10 metres tall, and with two or three times as many species as in the Tuamotu Archipelago.

The vascular flora, as represented by collections, consists of 8 Filicales, all widespread; and 55 Angiospermae, of which 4 are adventive and 10 are endemic. Of them 18 are trees.

The 41 indigenous Angiospermae which occur elsewhere have distributions wholly to the west or north-west, the nearest localities being on other Polynesian Islands, the atolls of the Tuamotu Archipelago, or on the high islands—Mangareva, Pitcairn, or the Austral Islands. This is so, with the exception of the three pantropic species in the genera *Sesuvium, Caesalpinia,* and *Suriana* which also have their nearest stations on the same Polynesian islands to the west. No part of the flora was derived from the east. The last atoll of the Tuamotus, Ducie, does lie to the eastward of Henderson, but it is a tiny atoll with little dry land, supporting a flora of only three species, which are all common to Polynesia and are of western derivation.

Thousands of miles eastward occur Easter Island, Juan Fernandez, and South America, with a very distinct flora. South America did not furnish any plant stocks to Henderson Island.

The adventive flora of Henderson Island includes *Cocos nucifera, Cordyline terminalis* cv. *Ti,* and *Aleurites moluccana,* which were deliberately introduced by the people of Pitcairn Island. Also it is reported by Maude (1951: 62–63) that the Pitcairn Islanders had planted a few lime and orange trees. These are probably growing at the north end, which is the regular landing place of the islanders. One of them, Magistrate David Young, reported that "there were five or six acres of comparatively good soil in the north-east corner, where crops of potatoes had been grown" (see Maude, 1951: 62–63). So, when these two cultivated fruit trees and one root crop reported as present, are added to the three species represented by specimens, the total of planted economic species is six. They only occur at the few landing spots and are obviously adventives. The only weedy species, introduced accidentally, is *Achyranthes aspera.*

Henderson Island is at almost the south-eastern end of south-eastern Polynesia. The flora of this region was recently described (F. & E. Brown, 1931–35). For those species not included in the Brown's flora, the references to the place of publication are given in the following catalogue.

Catalogue of the Flora

The lower Cryptogams have not been studied by the authors. The determinations of them by various specialists are here summarized in order to put them on record. These are all based on collections of the Mangarevan Expedition and are preserved in the Bishop Museum.

Fungi

Polyporus sp. St. John & Fosberg 15,098.

Laschia sp. Fosberg 11,352.

No. 15,133 is an undetermined fungus.

Lichenes

Arthopyrenia sp. St. John & Fosberg 15,101.

Collema sp. St. John & Fosberg 15,102.

Parmelia tinctorum Despr. ex Nyl. var. **inactiva** Zahlbr. St. John & Fosberg 15,103.

Physcia integrata Ach. St. John & Fosberg 15,152. Also No. 15,104B is a sterile collection of the same genus.

Ramalina linearis Tayl. St. John & Fosberg 15,100; 15,135.

Bryophyta

Hepaticae indet. St. John & Fosberg 15,134; 15,136.

Calymperes tenerum CM. St. John & Fosberg 15,124A.

C. tuamotense Bartr. St. John & Fosberg 15,099.

Frullania squarrosa (RBN) Fr. St. John & Fosberg 15,123.

Hexagonia polygramma Mont. St. John & Fosberg 15,181.

Leucophanes nukahivense Bisch. St. John & Fosberg 15,169.

Macromitrium tongense Sull. St. John & Fosberg 15,112; 15,134; 15,177.

Pannaria mariana (Fr.) MA. St. John & Fosberg 15,111.

Rhacopilum cuspidigerum (Schwaeg.) Mitt. St. John & Fosberg 15,164.

Taxithelium falcifolium Bartr. St. John & Fosberg 15,129.

Pteridophyta

Aspleniaceae

Asplenium lobulatum Mett. Linnaea 36: 100, 1869. Tait 86, towards South Point and rather scarce. The collection matches nicely this species which has previously been known from Hawaii, Tahiti, Samoa and New Guinea.

Asplenium nidus L. Reported by Hooker & Arnott (1830-41); also listed in the Challenger Expedition report (Hemsley, 1885); Tait 88; St. John & Fosberg 15,088; Lintott H 7. Regularly epiphytic on trees or fallen from trees, common on the top of the island, also in thicket just above beach on north-west landing.

Asplenium obtusatum Forst. f. Tait 83; 85; 89. Near edge of the cliffs.

Davalliaceae

Davallia solida (Forst. f.) Sw. Tait 82; in 1921 ? Quayle; St. John & Fosberg 15,108. Common in all localities, on moist dissected coral, in the forest on the island top.

Nephrolepis biserrata (Sw.) Schott. *N. biserrata* var. *subferruginea* Hook. Quayle & Curtis 383; St. John & Fosberg 15,087; 15,143; Fosberg 11,345. In thickets or forest, top of beach, and island top, common.

Nephrolepis exaltata (L.) Schott. Tait 81; in 1921 ? Quayle. On beach flat, and island top, common.

Polypodiaceae

Cyclophorus blepharolepis C. Chr. St. John & Fosberg 15,147; 15,154. Inland on island top, occasional epiphyte on trees.

Microsorium vitiense (Baker) Copel.; *Polypodium europhyllum* C. Chr. var. *hendersonianum* E. Br., the latter based on the holotype, Quayle 389 from Henderson Island.

Phymatodes Scolopendria (Burm.) Ching. *Polypodium Phymatodes* L. Tait 84; 87; 90; in 1922 ? Quayle; St. John & Fosberg 15,095; 15,125; (15,138 aberrant); 15,139; Fosberg 11,347; Lintott H 12. Common, found at all localities and habitats.

Spermatophyta

Pandanaceae

Pandanus sp. From the voyage of the Blossom, 1825-28, reported by Beechey (1831: 63); St. John & Fosberg 15,151; 15,152; 15,168; 15,179; Fosberg 11,346. This will be identified in St. John's forthcoming Revision of the genus Pandanus. The species was common at all localities visited at the north end. Captain Beechey observed (1825: 63) that, "The largest tree upon the island is the pandanus . . . ."

Gramineae

Lepturus repens (Forst. f.) R. Br. Tait 80; St. John & Fosberg 15,091. Found only at top of the coral sand beaches; as these are few and small, the plant is rare.

Thuarea involuta (Forst. f.) R. & S. Tait 77; Quayle & Curtis 397; St. John & Fosberg 15,084; Lintott H 27. The runners spread in the coral sand at the top of the few beaches; local.

Cyperaceae

Fimbristylis sp. aff. *F. pycnocephala* Hbd. and *F. atollensis* St. John. Tait 78, top of South Cliff, a stout sterile clump.

Palmae

Cocos nucifera L. St. John & Fosberg 15,148, top of beach at north-west landing. There were a few young trees, less than 30 years old. It is known that some or perhaps all of them had been planted by the Pitcairn islanders.

Liliaceae

Cordyline terminalis (L.) Kunth cv. **Ti.** Tait 79; St. John & Fosberg 15,145; Fosberg 11,351. A few plants near top of cliffs at north and north-east landings, doubtless introduced by people.

Dianella intermedia Endl. var. **gambierensis** F. Br. Holotype: Henderson I., Quayle 394, but the specimen is labelled Quayle & Curtis 394; also recorded on Mangareva. Tait 76; St. John & Fosberg 15,116; 15,121; 15,157; 15,167; Lintott H 32. Forming clumps in the forest on the top; occasional.

PIPERACEAE

Peperomia hendersonensis Yuncker, Bishop Mus., Bul. 143: 16-17, fig. 5, 1937. The holotype was St. John & Fosberg 15,090. Other collections are Tait 74, 92; St. John & Fosberg 15,153; Lintott H 8. Endemic to Henderson Island. In forest at bottom of shore cliff and on top, on mossy logs or shaded, dissected coral, seen at all localities; very abundant.

ULMACEAE

Celtis paniculata Planch. var. **viridis** F. Br. Holotype: Henderson I., Quayle & Curtis 387. Other collections are: Tait 64; St. John & Fosberg 15,070; 15,126. Endemic to Henderson Island. In jungle on elevated, dissected coral, on the top; common.

URTICACEAE

Procris pedunculata (J. R. & G. Forst.) Weddell. Tait 60; 73; Quayle & Curtis 385; St. John & Fosberg 15,086; 15,180; Lintott H 3; H 28. On shaded, moist coral rocks, at base or crest of coastal cliffs, common.

LORANTHACEAE

Korthalsella rubescens (v. Tiegh.) Lecomte, Mus. Nat. Hist. Paris, Bul. 22: 266, 1916. St. John & Fosberg 15,160; Lintott H 10. Parasitic on *Glochidion pitcairnense*; rare.

Korthalsella vitiensis (v. Tiegh.) Engler. *K. Margaretae* F. Br.; *K. Margaretae* F. Br. new var. ? from Henderson, unnamed; *K. platycaula* (v. Tiegh.) Engler var. *vitiensis* (v. Tiegh.) Danser, new synonyms. Tait 61; Quayle No. X; St. John & Fosberg 15,118; 15,160; Lintott H 14. Parasite on *Celtis paniculata* var. *viridis, Glochidion pitcairnense, Xylosma suaveolens* ssp. *Haroldi,* and *Rubiaceae;* common.

In this genus it is difficult to establish the circumscription of the species, but it is believed that it should be upon a morphological basis. The visible differences are comparatively slight, consequently each successive reviser has tended to have a different interpretation. *K. Margaretae* F. Br. was reduced to the synonymy of *K. platycaula* var. *vitiensis* (see Danser 1940: 337), and the writer here reduces that to *K. vitiensis*; and to it the unnamed variety of *K. Margaretae* described from Henderson (F. Brown, 1935: 60) is also reduced. They have the internodes 5–11 mm wide and elliptic. The two collections, St. John & Fosberg 15,118, and 15,166 were identified (Danser, 1937: 150) as *K. complanata* (v. Tiegh.) Engler, a species restricted to the Hawaiian Islands, and with narrower, elongate oblong internodes, different in size and tapering. It is unknown on any of the intervening islands between Hawaii and Henderson, some 3,200 miles to the south-east. The writer considers the Henderson and Austral Island plants to be identical with *K. vitiensis,* which occurs on Fiji, on Rapa, and on other nearby southern Polynesian Islands.—H. St. John.

SANTALACEAE

Santalum hendersonense F. Br. Lectotype: Henderson I., 1922, E. H. Quayle (BISH), here designated. Tait 57; 70; 71; St. John & Fosberg 15,078; 15,079; 15,110; 15,114. In jungle on coral on the island top; common.

AMARANTHACEAE

Achyranthes aspera L. Tait 66, in 1912, scarce on the island. Not found by the other collectors. Of the collections in the Bishop Museum, only one, from

Pukapuka (Danger Is.), E. Beaglehole 45, seems exactly identical with the Tait 66 specimen. They differ from the usual form of the species by having the blades only 5.9–9.5 cm long, 2–3 cm wide, thick firm chartaceous, narrowly lanceolate, acute, above strongly impressed reticulate and almost imperceptibly puberulous, below impressed reticulate and appressed soft puberulous. The leaves are firmer, narrower, and much less hairy than in the typical kind. Since this is a widespread, weedy species, and since the authorities agree on allowing considerable fluctuation within it, these two extreme specimens will be left in the species. Probably an introduced weed.

Nyctaginaceae

Boerhavia diffusa L. var. **tetrandra** (Forst. f.) Heimerl. *B. Tetrandra* Forst. f. Tait 56, on the face of the North Cliff, in 1912. Known on Henderson only by this single collection, but widely distributed on the Pacific islands and abundant on nearly every Polynesian island.

Pisonia grandis R. Br. *Ceodes umbellifera sensu* F. Br. (1935: 74-75), not of J. R. & G. Forst. Tait 65, 72, 75; St. John & Fosberg 15,075, 15,131, 15,170. In woods on coral on island top, at all localities; abundant.

Portulacaceae

Portulaca lutea Soland. Tait 91; Fosberg 11,350. On coastal limestone cliffs, rare.

Lauraceae

Cassytha filiformis L. Tait 58; St. John & Fosberg 15,083; Lintott H 29. Vine, parasitic on shrubs and herbs, on the sea cliffs and in the forest on top; very abundant.

Hernandiaceae

Hernandia sonora L. *H. ovigera* L. var. *Stokesii* F. Br. Tait 63; Whitney Expedition, without number or data; St. John & Fosberg 15,175. On jagged, dissected coral on the island top; occasional.

Cruciferae

Lepidium bidentatum Montin. *L. bidentoides* F. & E. Br. var. *typicum* F. & E. Br.; var. *pitcairnense* F. Br., and var. *pacificum* F. Br. Tait 5; Whitney Expedition 600A; St. John & Fosberg 15,156. On bare coral gravel or ledges on top in the interior.

Pittosporaceae

Pittosporum arborescens Rich ex Gray. Tait 6; 7; St. John & Fosberg 15,149. On cliffs or in jungle on island top; occasional. It also occurs in Fiji and Tonga.

Leguminosae

Caesalpinia Bonduc (L.) Roxb. Tait 17; Whitney Expedition, without data.

Cassia glanduligera St. John, sp. nov. (Fig. 8). Diagnosis Holotypi: Frutex 6 m altus, ramis glabris, cortice brunnea cum lineis lenticellarum rotundatarum, internodis 2–22 mm longis, cicatricibus 1.5–2.2 mm altis depresso-scutelliformibus prominentibus, fasciculis singulis, ramulis foliferis 1–2 mm diametro glabratis, novellis semiadpresse puberulis, stipulis 10–12 mm longis lineari-subulatis arcuatis

FIG. 8.—*Cassia glanduligera* St. John from holotype. *a*, habit × ½; *b*, flower × 4; *c*, fruit × 1; *d*, seed × 4.

caducis, foliis 9–15 cm longis numerosis aggregatis mox glabratis, petiolis 15–36 mm longis gracilibus, rhachidis 3.5–6.5 cm longis sulcatis, glandulis interpetiolularibus 1.5–2 mm longis clavatis in nodis omnibus vel solo in 1–2 inferioribus, petiolulis 1–2 mm longis sparse puberulis, foliolis in 4 (–3) jugis accrescentibus chartaceis infra pallidioribus ellipticis vel late ellipticis emarginatis; foliolis inferis 17–37 mm longis, 16–21 mm latis, foliolis superis 4–6 cm longis, 18–29 mm latis, racemeis 5–6 cm longis sparse adpresse puberulis axillaribus adscendentibus, pedunculis 3–4 cm longis bracteis 2–3 mm longis ovatis vel ellipticis recurvatis, pedicellis 10–16 mm longis in apice pedunculi congregatis dense adpresse puberulis, sepalis binis exterioribus 4–5.5 mm longis late ovatis concavis chartaceis in basi sparse puberulis aliter glabris, sepalis tribus interioribus 5.5–6 mm longis ovatis membranaceis valde nervosis glabris basi cuneati vel subunguiculati, petalis 6 mm longis glabris luteis valde nervosis tribis interioribus ovatis binis superioribus ellipticis, staminibus fertilibus 10 subaequalibus, filamentis 0.7–1 mm longis teretibus, antheris 2.3–2.9 mm longis subaequalibus oblongis arcuatis in lineis apicalibus dehiscentibus deinde parte lateralibus, ovario arcuato dense adpresse pilosula, stigmatibus obliquis, leguminibus 12.8 cm longis cum 11 mm stipite planis linearioblongis obscure brunneis in epiderme reticulatis apice acuto basi cuneati 10-seminiferis, seminibus 7–8 mm diametro subcircularibus subplanis biconvexis obscure brunneis exnitentibus.

Description of all specimens examined: Shrub 3–6 mm tall; branches glabrous, the bark brown to light grey, with longitudinal lines of rounded lenticels; internodes 2–22 mm long; leaf scars 1.5–2.2 mm high, depressed shield-shaped, raised and prominent; bundle scar 1; leafy branchlets 1–4 mm in diameter, glabrate; young shoots semi-appressed puberulous; stipules 10–12 mm long, linear-subulate, arcuate, caducous; leaves 9–22.5 cm long, numerous, crowded, early glabrate; petioles 15–50 mm long, slender; rhachis 3.5–11 cm long, furrowed above; an interpetiolular gland 1.5–2 mm long, clavate borne at all or at the 1–2 lowest joints; petiolules 1–3 mm long, sparsely puberulous; leaflets in 3–5, usually 4, pairs, accrescent, chartaceous, darker green above, pale green below, elliptic or broadly elliptic, entire, emarginate; leaflets of lowest pair 17–37 mm long, 10–29 mm wide; leaflets of uppermost pair 4–7 cm long, 18–37 mm wide; racemes 5–6 cm long, sparsely appressed puberulous, axillary, ascending; peduncles 2.7–4 cm long; bracts 2–3 mm long, ovate or elliptic, recurving; pedicels 10–18 mm long, crowded at apex of peduncle, densely appressed puberulous; two outer sepals 4–5.5 mm long, broadly ovate, concave, chartaceous, sparsely puberulous at base, elsewhere glabrous, three inner sepals 5–6 mm long, ovate, membranous, prominently veined, glabrous, cuneate or almost clawed at base; petals 6 mm long, glabrous, yellow, strongly dark veined, the three lower ovate, the two upper elliptic; fertile stamens 10, nearly equal; filaments 0.7–1 mm long, terete; anthers subequal, 2.3–2.9 mm long, oblong, arcuate, dehiscent by a longitudinal suture from the apex down the side of each anther sac; ovary exceeding the stamens, arcuate, densely appressed pilosulous; the stigma oblique; pods flat, 10–13.3 cm long, including the 7–16 mm stipe, 9.5–14.5 mm wide, linear-oblong, dark brown, with fine, raised reticulations, the apex acute, the base cuneate, 8–10-seeded; seeds 7–8 mm in diameter, subcircular, almost flat biconvex, dull, dark brown, the hilum lateral on an umbo, the centre slightly raised from the thickened edges.

Holotypus. Henderson Island, jungle on elevated, dissected coral, 33 m alt., June 18, 1934, H. St. John & F. R. Fosberg 15,128 (BISH).

Specimens Examined. Henderson Island: 1912, D. R. Tait 18 (E, BISH); Whitney Expedition, without data (A, BISH); north end, jungle on elevated coral, 30 m alt., June 17, 1934, H. St. John & F. R. Fosberg 15,058 (BISH); West beach, fairly common on top, February 3 and 4, 1957, W. H. Lintott H 1 (BISH,

CANTY). Austral Islands, Rurutu: West slope of Teape, thicket on steep slope, 300 m alt., Sept. 2, 1934, H. St. John 16,780 (BISH); Rurutu, Arei, woods on elevated dissected coral limestone, 70 m alt., August 30, 1934, H. St. John 16,736 (BISH).

Cassia glanduligera is a member of the subgenus *Senna* and the section *Psilorhegma*. Its closest relative is *C. Gaudichaudi* H. & A. of the Hawaiian Islands, which is a shrub or tree 0.5–11 m tall; with leaflets elliptic-oblong or narrowly elliptic; interpetiolular glands 2–3 mm long, borne at the 1 (–2) lowest joints; racemes with bracts 3–5 mm long, lanceolate; two outer sepals 6–7 mm long; three inner sepals 8–11 mm long; petals 9–12 mm long, elliptic, cuneate, puberulent without; pod 6–12 cm long; and the seeds mahogany-black, very shiny. Though Hooker in describing this species stated "the whole plant is perfectly smooth", the numerous recent collections so identified from the Hawaiian Islands are with puberulent herbage. The holotypic specimen at Kew has now been examined. C. E. Hubbard reports (in lit. July 10, 1959) that "the lower surfaces of the leaves, the rachis, young stems and fruits are all at first covered by a short appressed indumentum of a pale brownish colour. All these parts eventually become glabrous." Thus it is established that the recent collections well match the holotype of the species. *C. glanduligera* has the distinctions: shrub 3–6 m tall; leaflets elliptic or broadly so; interpetiolular glands 1.5–2 mm long, borne at all or at merely the 1–2 lowest joints; raceme with bracts 2–3 mm long, ovate or elliptic; two outer sepals 4–5.5 mm long; three inner sepals 5–6 mm long; petals 6 mm long, the three lower ones ovate; pod 10–13.5 cm long; and the seeds dark brown, dull.

This species may occur over a wider geographic area, as other records of *Cassia* in the South Seas may well belong here. For instance, *C. Gaudichaudi* has been recorded for Tahiti by Nadeaud and by Drake del Castillo; for the Loyalty Islands by Däniker, and for New Caledonia by Guillaumin. These identifications are considered dubious, but until the specimens can be studied no more positive statement can be made.

The new specific epithet is coined from the Latin, *glandula*, a little gland; *gero*, to carry, in allusion to the glands on the rhachis.

Sesbania atollensis St. John, sp. nov. (Fig. 9).

S. speciosa (Soland.) F. Br. var. *typica* F. Br., B. P. Bishop Mus., Bul. 130: 110, 1935, non Taub. ex Engler (1895); *S. speciosa* (Soland.) F. Br. var. *tuamotuensis* F. Br., B. P. Bishop Mus., Bul. 130: 110–111, Fig. 19, 1935.

Nom. Vern.: "kofai".

DIAGNOSIS HOLOTYPI. Arbor 6 m alta 10 cm diametro, ramulis pilosulis, nodis inflatis, foliis 9–11 cm longis, stipulis 2 mm longis lanceolatis, petiolulis 1–1.5 mm longis foliolis 8–17-jugis, 17–23 mm longis, 7–10 mm latis, elliptici-oblongis vel in basi minime majoribus mucronatis vel emarginatis glabratis, inflorescentiis 7–8 cm longis pauce-floriferis sparse pilosulis racemiformatis, pedunculo 12–35 mm longo, pedicelis 10–15 mm longis, calycibus 9–10 mm longis lobis binis superis 1.5 mm longis late deltoideis lobis tribus inferis 2 mm longis deltoideis, corollis incarnatis ad fuscis vel obscure rubris et nigro-maculatis, vexillo 4.6 cm longo ungui 1 cm longo limbo ovato-subrotundato subcordato, alis 4.5–5 cm longis limbo semisagittato apicibus connatis, carina 5 cm longa arcuata arcuato-semielliptica obtusa per 1/3 connata, staminibus circa 5 cm longa, pistilo libero glabro vel subglabro.

Description of all specimens examined: Tree 6–10 m tall, 10 cm in diameter; wood white soft; bark grey; branchlets pilosulous; nodes swollen, protruding; leaves 9–25 cm long; stipules 2–6 mm long, lanceolate to linear-lanceolate, cadu-

FIG. 1.—Looking south in north-west cove, showing sandy beach and coral sea cliff, undercut by waves, Henderson Island.

Photo by C. M. Cooke, jun.

FIG. 2.—Looking north from north-west cove, showing cliffs and thicket of *Timonius polygamus*.

Photo by F. R. Fosberg.

FIG. 3.—View south over north-west cove, showing *Cocos nucifera, Pandanus* sp., *Pemphis acidula,* and *Timonius polygamus.*

Photo by F. R. Fosberg.

FIG. 4.—Beach vegetation in north-west cove, showing (from left to right) *Pandanus* sp., *Messerschmidia argentea, Cocos nucifera,* and *Pemphis acidula.*

Photo by H. St. John.

FIG. 5.—Looking seaward from north-west end, showing *Xylosma suaveolens* ssp. *Haroldi*, and *Pandanus* sp.

Photo by H. St. John.

FIG. 6—*Pandanus* sp., showing trunk and branches, on one of which, at lower right, perches a native dove.

Photo by F. R. Fosberg.

FIG. 7.—*Pandanus* sp., showing branch and pendent head of fruit.

Photo by F. R. Fosberg.

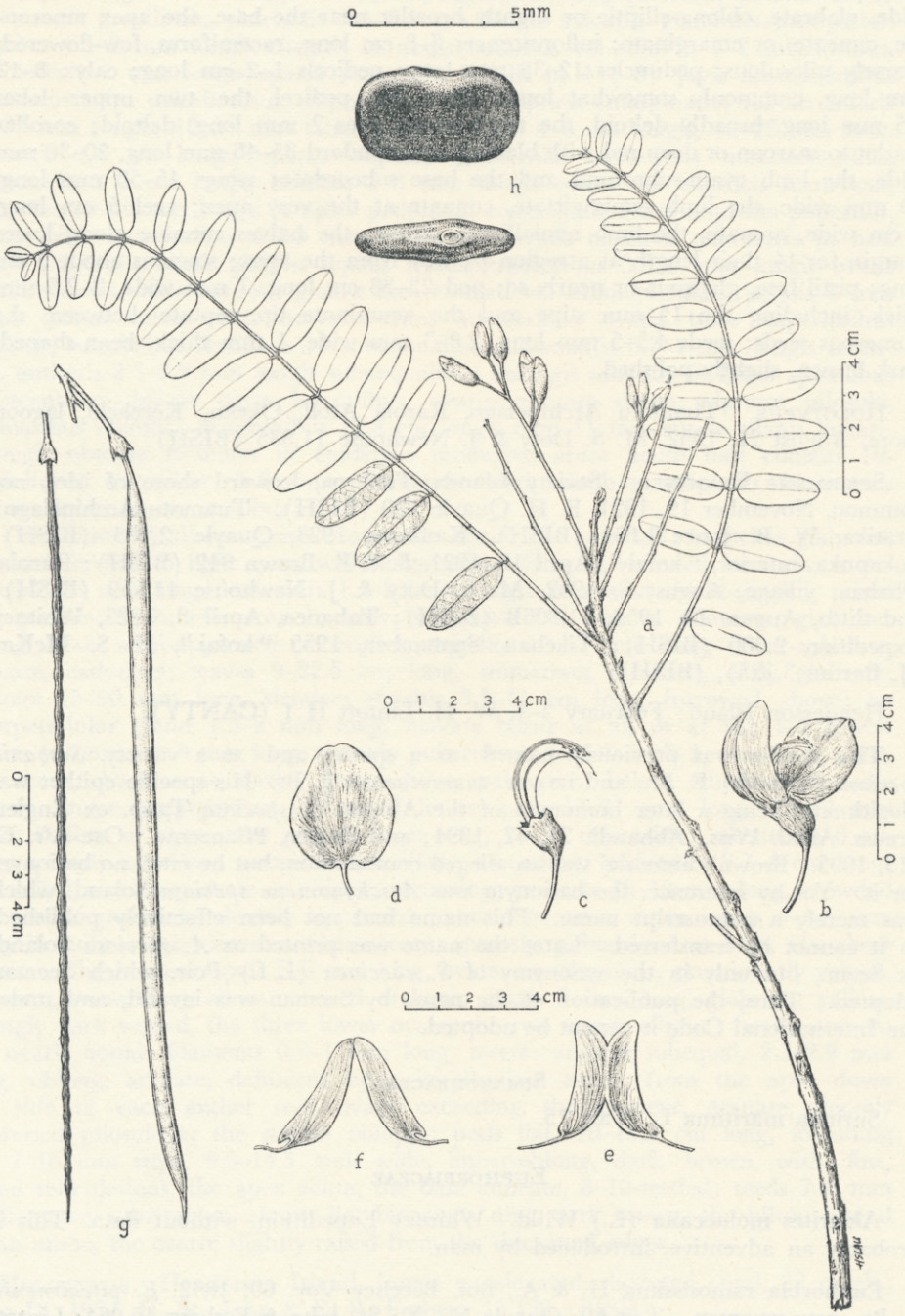

Fig. 9.—*Sesbania atollensis* St. John from holotype. *a*, habit × ½; *b*, flower × ½; *c*, calyx and stamens × ½; *d*, banner × ½; *e*, keel, opened out × ½; *f*, wings × ½; *g*, pods × ½; *h*, seeds × 5.

cous, petiolules 1–2 mm long; leaflets 8–17 pairs, each 15–42 mm long, 5–12 mm wide, glabrate, oblong-elliptic or slightly broader near the base, the apex mucronate, cuneate, or emarginate; inflorescences 6–8 cm long, racemiform, few-flowered, sparsely pilosulous; peduncles 12–35 mm long; pedicels 1–2 cm long; calyx 8–12 mm long, commonly somewhat longer than the pedicel, the two upper lobes 1.5 mm long, broadly deltoid, the three lower ones 2 mm long, deltoid; corollas scarlet to maroon or deep red with black spots; standard 35–46 mm long, 20–30 mm wide, the limb ovate-subrotund and the base subcordate; wings 45–50 mm long, 10 mm wide, the limb semisagittate, connate at the very apex; keel 5 cm long, 1 cm wide, arcuate, the limb semielliptic, obtuse, the halves connate along lower margin for ⅓ their length at a region ⅓ way from the apex; stamens about 5 cm long; pistil free, glabrous or nearly so; pod 23–38 cm long, 7 mm wide, 2–2.5 mm thick, including the 15 mm stipe and the acuminate tip, septate between the numerous seeds; seeds 4.5–5 mm long, 2.8–3 mm wide, 1 mm thick, bean-shaped, dark brown, slightly polished.

HOLOTYPUS. Tuamotu Archipelago, Raroia Atoll, Okeku, Kerekeki, lagoon shore, August 21, 1952, M. S. Doty & J. Newhouse 11,835 (BISH).

SPECIMENS EXAMINED. Society Islands, Tetiaroa, leeward shore of islet, not common, November 19, 1921, E. H. Quayle 190 (BISH). Tuamotu Archipelago: Aratika, W. B. Jones 1,851 (BISH); Kaukura, 1923, Quayle 2,183 (BISH); Pukapuka, interior, "kofai", April 15, 1921, F. & E. Brown 342 (BISH); Raroia, Ohehaa, village, August 7, 1952, M. S. Doty & J. Newhouse 11,559 (BISH); and ditto, August 18, 1952, 11,906B (BISH); Tahanea, April 3, 1923, Whitney Expedition 2,000 (BISH); Tikehau, September, 1955 "kofai", H. S. McKee (J. Barrau 3,125), (BISH).

Henderson Island: February 3–4, W. H. Lintott H 1 (CANTY).

This species was previously named as a species and as a variety, *Sesbania speciosa* (Soland.) F. Br., and its var. *tuamotuensis* F. Br. His specific epithet was illegitimate, being a later homonym of the African *S. speciosa* Taub. ex Engler, Preuss. Akad. Wiss., Abhandl. 21, 42, 1894; and Engler, Pflanzenw. Ost.-Afr. C, 213, 1895. Brown's binomial was an alleged combination, but he cited no basionym for it. Yet by inference, the basionym was *Aeschynomene speciosa* Soland. which was merely a manuscript name. This name had not been effectively published, so it cannot be transferred. Later the name was printed as *A. speciosa* Soland. ex Seem., but only in the synonymy of *S. coccinea* (L. f.) Poir. which Seeman adopted. Thus, the publication of the name by Seeman was invalid, and under the International Code it cannot be adopted.

SIMAROUBACEAE

Suriana maritima L. Tait 15.

EUPHORBIACEAE

Aleurites moluccana (L.) Willd. Whitney Expedition, without data. This is probably an adventive, introduced by man.

Euphorbia ramosissima H. & A., Bot. Beechey Voy. 69, 1832. *E. pitcairnensis* F. Br., new synonym. Tait 69; Quayle No. X; St. John & Fosberg 15,064; Lintott H 25. Prostrate or trailing on coral shore cliffs; common.

The holotype was collected on Elizabeth Island [Henderson I.] on December 3, 1825, by Lay and Collie of the Beechey Voyage. Botanists at Kew have confirmed the writer's suspicion that the Henderson and the Pitcairn plants were identical.

They have compared the holotype of *E. ramosissima* from the Glasgow herbarium with Pitcairn plants and report them as conspecific.

Glochidion pitcairnense (F. Br.) St. John, comb. nov.

G. tahitense Baill. var. *pitcairnense* F. Br., B. P. Bishop Mus., Bul. 130: 142, Fig. 22, o–q, 1935.

This plant with firm ovate acute glabrous blades, and large capsules, 15 mm in diameter and with the lobings 2 mm deep, seems well distinct from the species of Tahiti. The collections from Henderson Island well match the holotype from Pitcairn Island.

Henderson Island: Reported as *Bradleia Glochidion* ? Gaertn., Captain Beechey's voyage, *fide* Hooker & Arnott (1832: 69); September, 1912, R. D. Tait 54 and 55; north end, jungle on elevated coral, 30 m alt., June 17, 1934, St. John & Fosberg 15,055; and June 18, 1934, 15,132; and in 1957, February, Lintott H 9.

Tiliaceae

Triumfetta procumbens Forst. f. Tait 12; St. John & Fosberg 15,092. Trailing on coral sand sea beaches.

Malvaceae

Thespesia populnea (L.) Soland. ex Correa. Tait 8; St. John & Fosberg 15,066; Lintott H 11. Forming thickets on the shore flats; abundant.

Flacourtiaceae

Xylosma suaveolens (J. R. & G. Forst.) Forst. f. subsp. **Haroldi** Sleumer, Bot. Gart. Berlin, Notizbl. 14 (123): 293, 1938. Tait 1, 2, 3, 4, 13; St. John & Fosberg 15,054, 15,056, 15,071, 15,119; Lintott 9. Abundant shrub or tree in jungle on the island top.

Lythraceae

Pemphis acidula J. R. & G. Forst. Tait 16; St. John & Fosberg 15,093; 15,096; Lintott H 20. On top of sea beaches and front of sea cliffs, common.

Myrtaceae

Eugenia rariflora Benth. Tait 19; St. John & Fosberg 15,061. On shore flats, cliffs, and flat top, abundant.

Araliaceae

Meryta brachypoda Harms, Bot. Gart. Mus. Berlin-Dahlem, Notizbl. 14: 320–321, 1938. Described from Raivavae and Tubuai, Austral Is. Since Harms failed to designate a holotype, the collection from Raivavae I., F. R. Fosberg 11,714, is here chosen as lectotype. This and the other collections from this island have the leaf base long cuneate, and have a petiole 1.5–4 cm long. A collection from Henderson Island is now so determined: 1912, D. R. Tait 62[1].

---

[1] *M. brachypoda* Harms var. *brevior* St. John, var. nov. A specie differt in laminis abrupte cuneatis vel auriculatis, petiolis 5–10 mm longis. Differing from the species by having the blades abruptly cuneate or auriculate, and the petioles 5–10 mm long.

Austral Islands: Tubuai I., S. slope of Panee, upper woods, 330 m alt., tree 12 m high, 70 cm diam., Aug. 23, 1934, H. St. John 16,533 (holotype, BISH); Taitaa, dense upper woods, 340 m alt., tree 7 m high, 15 cm diam., August 16, 1934, H. St. John 16,343 (BISH).

These were included by Harms in his *M. brachypoda.*

FIG. 10.—*Myrsine Hosakae* St. John from holotype. *a*, habit × ½; *b*, flower × 16; *c*, pistil × 16; *d*, *e*, fruit × 4.

MYRSINACEAE

Myrsine Hosakae St. John, sp. nov. (Fig. 10).

DIAGNOSIS HOLOTYPI. Arbor 7 m alta glabra, cortice griseo vel brunneo sed quando fisso rubrescenti, ligno duro, alabastris terminalibus squamosis lanceo-ovoideis, squamis ovatis brunneis ciliolatis apiculatis, ramulis viridibus subcarnosis late divergentibus, in ramis aetatis secundae tertiaeve ramulas abbreviatas multas floriferas ad 5 mm longas ferrentibus lenticelis linearibus multis, petiolis 3–10 mm longis validis, laminis 4–10.5 cm longis 20–57 mm latis late ellipticis vel in minoribus obovatis sed principalibus coriaceis opacis integris marginibus plerumque revolutis costa infra prominenti nervis secundariis 9–14 in uno latere paene rectis sed apicibus arcuatis interconnectentibus, umbellis 3–7-floriferis, pedicellis in flore 2–4 mm longis in fructu 3–5 mm longis, calycibus 4-lobatis in flore 1.2 mm longis in fructu 2 mm longis infundibuliformis in fructu lobis 1–1.5 mm longis ovatis vel deltoideo-ovatis ciliolatis et cum glandulis resiniferis nigris lineatis maculosis, corollis 2.7 mm longis connatis, tubis brevissimis lobis 2–2.2 mm longis late deltoideis cum glandulis nigris immersis lineatis marginibus papillosis, filamentis brevissimis in lobis corollae adnatis, connectivo tereti obscuro, antheris 0.8 mm longis 0.5 mm latis, ovario depresso 1.9 mm lato, stigmate bilobato, drupis 6–10 mm longis, 4–5 mm diametro ellipsoideis fuscis cum glandulis resiniferis nigris immersis lineatis, endocarpio osseoso pallido.

DIAGNOSIS OF HOLOTYPE. Tree 7 m tall, glabrous; bark gray to brown, but when cut turning red; terminal scaly buds lance-ovoid, the scales brown, ovate, ciliolate, apiculate; wood hard; branchlets green, somewhat fleshy and shrinking on drying, widely divergent; branches at intervals showing crowded, reduced leaf scars like annual terminal bud scale scars, and on the second and fully on the third of these are developed crowded, prominent lateral spurs up to 5 mm in length, from which spring the flowers; lenticels linear, vertical, numerous; petioles 3–10 mm long, stout; blades 44–10.5 cm long, 20–57 mm wide, broadly elliptic or the smaller ones obovate, coriaceous, opaque, entire, the margins commonly revolute, the midrib prominent below, secondary veins 9–14 on a side, nearly straight, then well in from the margin forward arched and interconnected; umbels 3–7-flowered, borne on the lateral spurs; pedicels 2–4 mm long in flower, 3–5 mm long in fruit; calyx 4-lobed, in flower 1.2 mm long, funnelform, in fruit 2 mm long, shallow concave and the lobes 1–1.5 mm long, ovate or deltoid-ovate, ciliolate, and with immersed, black, resiniferous lines; corolla 2.7 mm long, gamopetalous, the tube very short, the corolla lobes 2–2.2 mm long, broadly deltoid, with sunken black, resinous lines, the margins papillose; filament very short, adnate to base of corolla lobe; connective terete, dark; anthers 0.8 mm long, 0.5 mm wide; ovary depressed, 1.9 mm wide; stigma 2-lobed; drupes ellipsoid, 6–10 mm long, 4–5 mm in diameter, tawny, with numerous black, glandular dots and lines in the exocarp and mesocarp; endocarp bony, pale; seeds not seen.

HOLOTYPUS. Henderson I., 100ft elev., 1912, D. R. Tait 40 (BISH); isotype (E).

In the monograph by Mez (1902) the plants long classified as *Myrsine* were divided between it, *Suttonia* and *Rapanea* where he put most of the species. Because of having a gamopetalous corolla and sessile stamens, the present species would fall into the genus *Rapanea*. The detailed and careful revision by Hosaka (1940: 26–28) demonstrated the variability in connation of the petals, in shape of stigma, and in the attachment of the stamens. He concluded that only the single genus *Myrsine* could be maintained, instead of three. In agreement with this disposition of the genera, the new species which is here described is placed in *Myrsine*. A review of the other Polynesian species reveals that there is no

need for making new combinations, as they all have valid names under *Myrsine* already.

The closest relative of *M. Hosakae* is the Tahitian *M. ovalis* Nad. which has the blades 13 cm long, 60 mm wide, chartaceous, abundantly punctate, elliptic; and the pedicels about 5 mm long. *M. Hosakae* has the blades 4–10.5 cm long, 20–57 mm wide, coriaceous, not punctate, broadly elliptic to obovate; and the pedicels 2–4 mm long.

The new epithet is given in honour of Edward Yataro Hosaka, of the University of Hawaii, author of a significant revision of *Myrsine*.

SAPOTACEAE

Nesoluma St.-Johnianum H. J. Lam & Meeuse, Bishop Mus., Occas. Papers 14 (9) : 153–154, pl. 4, figs. 80–102, 1938. Tait 45, 49; St. John & Fosberg 15,105; 15,137, holotype; 15,146; Lintott H 18. Endemic tree, in forest on dissected coral of island top, abundant.

LOGANIACEAE

Geniostoma hendersonense St. John, sp. nov. (Fig. 11).

DIAGNOSIS HOLOTYPI. Arbor 6 m alta 10 cm diametro, cortice griseo sed quando fisso rubrescenti, ramulis foliisque glabris, internodis 7–45 mm longis, stipulis ocreatis submembranaceis 1–1.5 mm altis, petiolis 4–12 mm longis, laminis 3–9.5 cm longis, 24–64 mm latis chartaceis late ellipticis rariter ellipticis vel ovatis, nervis secundariis 3–5 in uno latere arcuatis adscendentibus, cymis axillaribus in flore 5–25 mm longis 5–13-floriferis glabris sed glutinosis, bracteis 0.5–1 mm longis lanceo-ovatis pedicellis in flore 2–5 mm longis gracilibus in fructu 6–8 mm longis, floribus foetidis, calycibus 1.3–1.7 mm longis late campanulatis lobis 0.7–0.9 mm longis late lanceo-ovatis marginibus membranaceis et ciliolatis in basi impensis, corollis 2.7–3 mm longis albis late campanulatis extra glabris intra densiter pilosis, lobis corollae 1.2–1.5 longis late ovatis concavis apiculatis ciliolatis, antheris 0.5 mm longis anguste oblongis erectis, ovario 1.2 mm diametro depresse suborbiculare, stylo 1 mm longo valido, stigmate 0.5 mm diametro capitato, capsulis 7–15 mm longis 4–6 mm latis, 2–3.5 mm crasis ellipsoideis adlanceolatis compressis coriaceis viridibus bivalvatis, carne in sicco nigro, seminibus 20 in seriebus quadriplicibus seminibus 1.5–2 mm longis late ellipsoideis ad ovoideis brunneis valde proxime papillosis.

Description of all specimens examined: Tree 3–8 m tall, 10–30 cm in diameter; bark gray or yellowish gray, when cut turning red; sapwood white, heartwood brownish, hard; trunk fluted, somewhat buttressed at base; young shoots and herbage glabrous; internodes 7–45 mm long; stipules forming an intrapetiolar, almost membranous, collar 1–1.5 mm high; petioles 4–14 mm long; blades 3–10.7 cm long, 24–64 mm wide, chartaceous, broadly elliptic, rarely elliptic or ovate, lateral veins 3–5 on a side, arched ascending; cymes axillary, in flower 5–25 mm long, 5–13-flowered, glabrous but glutinous, the bracts 0.5–1 mm long, lance-ovate; pedicels in flower 2–5 mm long, slender, in fruit 6–8 mm long; flowers with a strong fetid odor; calyx 1.3–1.7 mm long, broad campanulate, the tube with dark, swollen, protruding glands, the lobes 0.7–0.9 mm long, broadly lance-ovate, the margins membranous and ciliolate, at base overlapping; corolla 2.7–3 mm long, white, broad campanulate, glabrous without, within densely pilose with hairs reaching from just below the throat to the middle of the lobes, the lobes 1.2–1.5 mm long, broadly ovate, concave, apiculate, ciliolate, the upper half glabrous within, each lobe with a strong, dark midrib which has two ascending lateral branches, each of which is dichotomously branched; stamens alternate, the very

Fig. 11.—*Geniostoma hendersonense* St. John from holotype. *a*, habit × 1; *b*, bud × 10; *c*, flower × 10; *d*, corolla, spread open, inside view × 10; *e*, pistil × 10; *f*, fruit × 2; *g*, seed × 30.

short filaments attached just below the level of the throat; anthers 0.5 mm long, narrow oblong, erect; ovary 1.2 mm in diameter, oblate suborbicular; style 1 mm long, stout; stigma 0.5 mm in diameter, capitate; capsule 7–15 mm long, 4–6 mm wide, 2–3.5 mm thick, ellipsoid to oblanceoloid, compressed; exocarp coriaceous, green, dehiscing into two wide opening valves; the pulp enveloping the seeds drying black; seeds 20 in four rows, 1.5–2 mm long, broadly ellipsoid to ovoid, brown, strongly, closely papillose.

HOLOTYPUS: Henderson I., north centre, jungle on elevated dissected coral 30 m alt., June 20, 1934, H. St. John and F. R. Fosberg 15,159 (BISH).

Specimens examined, all from Henderson Island: September, 1912, D. R. Tait 23 and 34 and 59 (E); north centre, jungle on elevated dissected coral, 30 m alt., June 20, 1934, H. St. John and F. R. Fosberg 15,150 (BISH); ditto, St. John and Fosberg 15,162 (BISH); Feb. 3–4, 1957, W. H. Lintott H 17 (CANTY).

Geniostoma hendersonense finds its closest relative in the New Caledonian *G. Deplanchei* Vieill. ex Guillaumin which is a shrub 1.5 m tall; with stipules ciliate; blades 3–6 cm long, 2–3 cm wide, broadly elliptic to obovate; cymes up to 10 mm long; flowers green, in anthesis the lobes rotate and the flower 5–6 mm in diameter; anthers 1.2 mm long, lance-oblong; and the capsule 5–6 mm long, ovate, and puberulous. *G. hendersonense* is a tree 3–8 m tall, and up to 30 cm in diameter; has stipules not ciliate; blades 3–9.5 cm long, 24–36 mm wide, broadly elliptic, rarely elliptic or ovate; cymes 5–25 mm long; flowers white, in anthesis campanulate and 3–4 mm in diameter; anthers 0.5 mm long, narrowly oblong; and the capsule 7–15 mm long, ellipsoid to oblanceoloid, compressed, and glabrous.

This was apparently alluded to by Captain Beechey (1825: 63–64), " a species of budleia, which was nearly as large and as common, bearing fruit. It affords but little wood and has a reddish bark of considerable astringency . . ."

The new epithet alludes to its occurrence on Henderson Island.

APOCYNACEAE

Alyxia stellata (J. R. & G. Forst.) R. & S. Tait 46; St. John & Fosberg 15,127, 15,168, 15,178; Lintott H 4. Erect shrub, in forest on island top, common.

CONVOLVULACEAE

Ipomoea glaberrima Boj. *I. grandiflora* sensu F. Br. non (Choisy) Hallier. Tait 50; St. John and Fosberg 15,059; Fosberg 11,349; Lintott H 23. Vine, climbing over thickets at crest of sea cliffs; common.

BORAGINACEAE

Cordia subcordata Lam. Tait 68, local.

Heliotropium anomalum H. & A. var. **candidum** St. John, var. nov.

DIAGNOSIS HOLOTYPI. Foliis albis subadpressi-pilosulis, pilis 0.3–0.5 mm longis, calycibus 3.5 mm longis.

Description of all specimens examined: Leaves soft, white, subappressed pilosulous, the hairs 0.3–0.5 mm long, the pubescence silvery, shining and soft to the touch; calyx 3.5 mm long; corollas white with yellow eye, sweet fragrant.

HOLOTYPUS. Henderson I., north end, ledges on coral sea cliff, 10 m alt., June 17, 1934, H. St. John & F. R. Fosberg 15,069 (BISH).

Specimens examined: Henderson I., on sandy sea-shore and face of cliff, forming running clumps, August, 1912, D. R. Tait 44 (BISH, E); West Beach, February 3–4, 1957, W. H. Lintott H 26 (BISH, CANTY).

H. anomalum var. *anomalum* of the Tuamotus and the Austral Islands has the indument harsh, more sparse, the hairs 1–1.9 mm long; and the calyx 3.5–4 mm long.

The var. *mediale* Johnst. of Christmas and other Line Is. has the indument appressed, hirsutulous, the hairs 0.3–0.5 mm long, harsh; and the calyx 2–2.5 mm long.

The var. *argenteum* Gray, of Hawaii, has an appressed, soft, silvery pilosulous indument, the hairs 1–1.5 mm long; and the calyx 3.5 mm long.

The new var. *candidum*, of Henderson Island only, has the indument soft, white, and pilosulous, the hairs 0.3–0.5 mm long; and the calyx 3.5 mm long. Specimens of this variety bear manuscript annotations by Dr I. M. Johnston, but he has informed the writer (in July, 1959) that he has no intention of publishing upon it.

The new epithet is the Latin word *candidum*, white shining, in allusion to the colour of the indument of the herbage.

Messerschmidia argentea (L. f.) I. M. Johnston. *Tournefortia argentea* L. Capt. Beechey's Voyage, 1825, *fide* Hemsley (1885: 15); Tait 43; St. John & Fosberg 15,089; Fosberg 11,353; Lintott H 15. On the island flat top; common.

Verbenaceae

Premna integrifolia L. *P. taitensis* Schau. Tait 21; St. John & Fosberg 15,067 and 15,158; Lintott H 16. Shrub, on dissected coral of island top, common, and occasionally sprawling down face of sea cliffs.

Solanaceae

Lycium sandwicense Gray. Tait 41, 48; on top of South Cliff.

Rubiaceae

Canthium barbatum (Forst. f.) Seem. var. **Christianii** Fosb. forma **calcicola** Fosb. emend St. John. Tait 22, 24, 25, 29; Quayle 1A, holotype; St. John & Fosberg 15,085 and 15,115; Lintott H 5. Bush or tree in forest on island top; common.

The epithet *calcicolum* is corrected here to *calcicola*, since "cola" is a Latin noun of common gender.

Canthium odoratum (Forst. f.) Seem. *Chiococca odorata* (Forst. f.) H. & A.; *Plectronia Kohenua* F. Br. Capt. Beechey's Voyage, 1825-28, reported by Hooker & Arnott (1832: 65); Tait 31; St. John & Fosberg 15,057, 15,072, 15,073 and 15,176. In the jungle on dissected coral on the island top; abundant.

Guettarda speciosa L. Capt. Beechey's Voyage, 1825, reported by Hemsley (1885: 15); Tait 35; Quayle & Curtis 395; St. John & Fosberg 15,081; and 15,165; Lintott 19. Back of beach and on cliffs, occasional; in forest on island top; common.

Ixora fragrans (H. & A.) Gray. *Cephaelis fragrans* H. & A. Tait 51, 52, 53; Quayle & Curtis 395; St. John & Fosberg 15,081, 15,165. Top of beach, occasional; on cliffs; on island top, common.

Morinda umbellata L. var. **Forsteri** (Seem.) Fosb., Sargentia 1: 123, 1942; *M. Forsteri* Seem. Tait 27, 28, 33; St. John & Fosberg 15,074, 15,161; Lintott H 6. Climbing shrub, in forest on island top; occasional.

Timonius polygamus (J. R. & G. Forst.) Robins. *T. Forsteri* DC. Tait 20, 26, 30; St. John & Fosberg 15,063, 15,076, 15,082, 15,094, 15,120, 15,122, 15,140, 15,174; Lintott H 30; and s.n. Variable in leaf shape. Top of sand beach; shrub, festooning face of sea cliff, abundant; in jungle on island top; abundant.

GOODENIACEAE

Scaevola Taccada (Gaertn.) Roxb. var. **tuamotuensis** St. John, Taxon 9: 207, 1960. Quayle 1; St. John & Fosberg, 15,065; Fosberg 11,348 (holotype); Lintott H 13; H 21. On shore flats, and on the face of coral sea cliffs within reach of ocean spray; abundant. This is the sole variety in the Tuamotu Is., Gambier Is., and Pitcairn; and it also occurs on the Austral Is., Tonga, Society Is., Flint I., and the Marquesas Is.

COMPOSITAE

Bidens hendersonensis Sherff var. **hendersonensis**, Bishop Mus., Occas. Papers 12 (19): 6–7, pl. 2, 1937. Tait 38; St. John & Fosberg 15,107, holotype. Endemic, in jungle on dissected coral of island top; abundant.

Bidens hendersonensis Sherff var. subspathulata Sherff, Bishop Mus., Occas. Papers 12 (19): 7, pl. 3, 1937. St. John & Fosberg 15,155, 15,171, 15,173; holotype. Endemic in jungle on dissected coral of island top; common.

Senecio Stokesii F. Br. Tait 36, 37, 39; St. John & Fosberg 15,077, 15,080, 15,106, 15,109, 15,141, 15,172. In thickets or in jungle on island top; occasional.

BIBLIOGRAPHY

BEECHEY, F. H., 1831. Narrative of a voyage to the Pacific and Beering's Strait . . . in His Majesty's ship Blossom . . . 1825-28. vol. 1: i-xxvi, 1–470, 3 charts, 13 pl. Pages 61–65 concern Henderson Island.

BROWN, F. B. H. and E. D. W., 1931. Flora of South-Eastern Polynesia. 1: Monocotyledons, B. P. Bishop Mus., Bul. 84: 1–194, 18 figs., 35 pl.

——— 1931a. 2: Pteridophytes. Bul. 89: 1–123, 19 figs., 21 pl.

——— 1935. 3: Dicotyledons. Bul. 130: 1–386, 70 figs., 9 pls.

DANSER, B. H., 1937. A revision of the genus *Korthalsella*. Jard. Bot. Buitenzorg, Bul. III, 14 (2): 115–159, pl. 3, figs. 1–13.

——— 1940. A supplement to the revision of the genus *Korthalsella* (Lor.). Jard. Bot. Buitenzorg III, 16: 329–342, pl. 4.

FOSBERG, F. RAYMOND, 1937. Some Rubinaceae of South-Eastern Polynesia. B. P. Bishop Mus., Occas. Papers 13 (19): 245–293, 15 figs.

GRAY, [ASA], 1860. Notes upon some Rubiaceae, collected in the United States South Sea Exploring Expedition under Captain Wilkes, with characters of the new species, etc., Amer. Acad. Arts Sci., Proc. 4: 33–50.

HEMSLEY, WILLIAM BOTTING, 1885. Report of the Scientific results of the Voyage of H.M.S. Challenger, 1874–1876 . . . Botany, vol. 1 (1): 1–75. London.

HOOKER, W. J., and WALKER-ARNOTT, G. A., 1830-41. The botany of Captain Beechey's voyage . . . in His Majesty's ship Blossom . . . in the years 1825-26-27-28. 1–485, pls 1–99.

HOSAKA, EDWARD Y., 1940. A Revision of the Hawaiian species of *Myrsine* (*Suttonia, Rapanea*), (Myrsinaceae). B. P. Bishop Mus., Occas. Papers 16 (2): 25–76, figs. 1–21.

MACGREGOR, MURRAY, 1948. David Tait. Edinburgh Geol. Soc., Trans. 14: 277–278.

MAIDEN, J. H., 1901. Notes on the Botany of Pitcairn Island, Australas. Assoc. Adv. Sci., Rept. 8: 262–271.

MAUDE, H. E., 1951. Those Henderson Island Mysteries. Pacific Islands Monthly 21 (10): 62–63, May.

MEZ, CARL, 1902. Myrsinaceae Engler's Pflanzenreich IV, 236: 1–437, figs. 1–61.

SCHLITTLER, JAKOB, 1940. Monographie der Liliaceengattung *Dianella* Lam. 1–284, pls. 1–34. Zürich, Buchdruckerei Flutern.

SLEUMER, HERMANN, 1938. Die Malesisch-pacifischen *Xylosma*-Arten. Bot. Gart. Mus. Berlin, Notizbl. 14: 288–297.

H. ST. JOHN,
American Embassy,
Saigon, Vietnam.

W. R. Philipson,
University of Canterbury,
P.O. Box 1471,
Christchurch, N.Z.